

The action of the bromides of *ortho*- and *para*-anisyl-magnesium upon anthraquinone and β -methylanthraquinone. In these reactions substitution derivatives are formed in all respects analogous with those obtained with phenylmagnesium bromide and quinones. The reduction products of the diols obtained are also described.—**Ch. André**: The passage of the earth through the tail of Halley's comet. Observations with both the electrometer and magnetometer gave negative results.—**M. de Kerillis**: The aurora borealis. Laws and heliodynamical theories. Observations are discussed tending to prove the accuracy of the heliodynamical theory of the aurora.—**A. Blondel**: Observation of Halley's comet made at the Toulouse Observatory with the Brunner Henry equatorial of 38-cm. aperture. The apparent position of the comet and the comparison star are given for May 8.—**Léopold Féjer**: The partial sums of Fourier's series.—**G. Sagnac**: The interference of two beams superposed in the inverse sense along an optical circuit of large dimensions. The arrangement figured resembles that of Michelson in using half-silvered plates, the path of the rays being 30 metres. Some of the inconveniences of silvered glass interferometers are discussed.—**A. Chassy**: The absorption of energy by the passage of an alternating current through a gas at atmospheric pressure. The energy has been measured by the amount of heat developed; above a certain potential the heat developed is proportional to the intensity of the current.—**Paul Jégou**: A very sensitive electrolytic detector working without an auxiliary electromotive force. One of the platinum electrodes is replaced by a mercury-tin amalgam. The detector has a sensibility of the same order as the ordinary form, is invariable with the time, and is unaffected by vibrations.—**Pierre Sève**: A new model balance for the determination of magnetic fields. The apparatus described and figured is an improved form of the instrument designed by Cotton and made by Weber.—**Georges Claude**: The composition of the atmosphere after the passage of Halley's comet. A determination of the proportion of (helium+neon) showed no variation.—**A. Lafay**: A modification of the resistance of the air produced by roughnesses suitably arranged on the surface of a body. The experimental results given have a bearing on the problem of aerodynamics.—**Georges Meslin**: The structure of the lines of the spectrum.—**C. Chéneveau**: The precision of the measurement of magnetic susceptibilities. A discussion of a method recently proposed by M. Pascal.—**Louis Malclès**: The effect of penetration in dielectrics.—**M. Barre**: The solubility of silver sulphate in alkaline sulphates.—**E. Briner** and **A. Wroczyński**: The chemical action of high pressures: the compression of nitrous oxide and a mixture of nitrogen and hydrogen: the decomposition of carbon monoxide by pressure. No change was observed for nitrous oxide after compressing to 600 atmospheres at a temperature of 420° C. Negative results were also obtained with a mixture of hydrogen and nitrogen up to pressures of 900 atmospheres. Carbon monoxide showed clear evidence of chemical change after exposure to a temperature of 320° C. under a pressure of 400 atmospheres.—**Daniel Berthelot** and **Henri Gaudechon**: The chemical effects of the ultra-violet rays on gaseous bodies. On exposure to the ultra-violet rays a mixture of cyanogen and oxygen was nearly quantitatively converted into carbon dioxide and nitrogen. Ammonia mixed with oxygen gave as a final product water, nitrogen, and hydrogen. Hydrogen does not combine with oxygen under these conditions. Formic acid was identified amongst the products of the reaction with a mixture of acetylene and oxygen.—**Georges Denigès**: The presence of tartaric residues of wine in an ancient flask. The flask dated from the first century. Tartaric acid was detected in the deposit on the sides, proving that wine was originally placed in the flask.—**P. Clausmann**: The action of ozone upon carbon monoxide. The interaction of carbon monoxide with ozone produces carbon dioxide. The oxidation is increased by exposure to light and by the presence of moisture.—**H. Cousin** and **H. Hérissay**: Dehydrodicarvacrol.—**J. B. Senderens**: Ketones derived from benzoic and phenylacetic acids. The properties of a series of ketones prepared by the general catalytic method described in a previous paper.—**N. Chercheffsky**: The determination of the place of origin of a naphtha or of

substances derived from it.—**H. Gault**: The condensation of ethyl oxalate with ethyl tricarballoylate.—**H. Pariselle**: A new synthesis of natural and racemic erythrite.—**W. Louguinine** and **G. Dupont**: The heat of fixation of some ethylenic compounds. The hydrobromic acid was used in xylene solution, as much more concordant results were obtained with this than with aqueous hydrobromic acid.—**Ernest F. L. Marchand**: *Plasmodiophora brassicae*, a parasite of the melon and of celery.—**J. Capus** and **J. Feytaud**: A method of treatment against *Cochylis* and *Eudemis*. These Microlepidoptera are parasitic to the grape, and in recent years have caused great damage. The results of two modes of treatment are given.—**R. Robinson**: Re-section of the affluent veins.—**M. Hallopeau**: General considerations on the evolution of the trepanne in the human organism.—**E. Fauré-Frémiet**: Physico-chemical study on the structure of the nucleus of the granular type.—**C. Gerber**: Comparison between the mode of action of certain retarding salts and of the proteins of milk coagulable by heat on the caseification by ferments of boiled milk.—**M. Javillier**: The migration of the alkaloids in grafts of Solanaceae.—**M. and Mme. M. Rosenblatt**: The influence of the concentration in saccharose on the paralyzing action of certain acids in alcoholic fermentation.—**H. Bierry** and **Albert Ranc**: The diastatic hydrolysis of some derivatives of lactose. The lactase contained in the gastro-intestinal juice from *Helix pomatia* possesses unusual powers of hydrolysis, as it splits up, not only lactose, but several lactose derivatives, including lactobionic acid, lactosazone, lactose-amidoguanidine, lactose-urea, and lactose-semicarbazone. Galactose is in all cases one of the products, and this agrees with the views of E. Fischer, who regards lactose as a galactoside of glucose.—**M. Smoluchowski**: The mechanical theory of glacial erosion. A criticism and development of the theory put forward by M. de Martonne.—**Alfred Angot**: The magnetic and electric variations on the nights of May 18 and 19, 1910. None of the variations noted can be regarded as exceptional.—**J. A. Lebel**: Observation of the ionisation of the air in a closed vessel during the passage of Halley's comet.—**C. Limb** and **T. Nanty**: Observations of the magnetic variometers of the Observatory of Fourvière, at Lyons, during the night May 18-19. The variations were of the same order as those usually observed.—**F. Garrigou**: The presence of metalloids and metals in potable waters.—**J. Thoulet**: The measurement of the colour of marine vases.

GÖTTINGEN.

Royal Society of Sciences.—The *Nachrichten* (physico-mathematical section), part i. for 1910, contains the following memoirs communicated to the society:—

December 4, 1909.—**W. H. Perkin** and **O. Wallach**: Researches from the Göttingen University laboratory, xxiii.; on Δ^3 -menthenol.

January 15, 1910.—**W. Schnee**: The formula representing the coefficients in the theory of Dirichlet series.

January 29.—**E. Madelung**: Molecular free-vibrations (supplementary paper).

February 26.—**P. Kolbe**: Hilbert's method of uniformisation.—**L. Bieberbach**: The movement-groups of the n -dimensional Euclidean space with a finite fundamental region.—**O. Haupt**: Remarks on oscillation-theorems, a letter to Prof. Klein.

FORTHCOMING CONGRESSES.

JUNE 19-23.—International Congress of Mining, Metallurgy, Applied Mechanics and Practical Geology. Düsseldorf. General Secretaries: Dr. Schrödter and Mr. Löwenstein, Jacobi-strasse 3/5, Düsseldorf, Germany.

JULY 4-8.—International Congress in Naval Architecture and Marine Engineering. London. Secretary: 5 Adelphi Terrace, London, W.C.

JULY 10-25.—International American Scientific Congress. Buenos Aires. Address for inquiries: President of the Executive Committee, c/o Argentine Scientific Society, 269 Calle Cevallos, Buenos Aires.

JULY 27-31.—International Congress on the Administrative Sciences. Brussels. Secretary of British Committee: Mr. G. Montague Harris, Caxton House, Westminster.

AUGUST 1-6.—International Congress of Entomology. Brussels. Chairman of Local Committee for Great Britain: Dr. G. B. Longstaff, Highlands, Putney Heath, S.W.

AUGUST 1-7.—French Association for the Advancement of Science. Toulouse. President: Prof. Gariel. Address of Secretary: 28 rue Serpente, Paris.

AUGUST.—International Congress of Photography. Brussels. Correspondent for United Kingdom: Mr. Chapman Jones, 11 Eaton Rise, Ealing, W.

AUGUST 2-7.—International Congress on School Hygiene. Paris. General Secretary: Dr. Dufestel, 10 Boulevard Magenta. Paris. Hon. Secretaries for Great Britain: Royal Sanitary Institute, 90 Buckingham Palace Road, S.W.

AUGUST 15-20.—International Zoological Congress. Graz (Austria). President: Prof. Ludwig von Graff. Address for inquiries: Präsidium d. s. VIII. Internationalen Zoologen-Kongresses, Universitätsplatz 2, Graz (Österreich).

AUGUST 25-26.—International Geological Congress. Stockholm. General Secretary: Prof. J. G. Andersson, Stockholm 3.

AUGUST 29 TO SEPTEMBER 6.—International Union for Cooperation in Solar Research. Mount Wilson Solar Observatory. British Member of Executive Committee to whom inquiries should be addressed: Prof. A. Schuster, F.R.S., Victoria Park, Manchester.

AUGUST 31 TO SEPTEMBER 7.—British Association. Sheffield. President: Prof. T. G. Bonnev, F.R.S. Address for inquiries: General Secretaries, Burlington House, W.

SEPTEMBER 6-8.—International Congress of Radiology and Electricity. Brussels. General Secretary: Dr. J. Daniel, 1 rue de la Prévôte, Brussels. Correspondents for United Kingdom: Prof. Rutherford and Dr. W. Makower, University of Manchester, and Dr. W. Deane Butcher, Holyrood, Faling, W.

SEPTEMBER 12-24.—German Association of Naturalists and Physicians. Königsberg. Secretaries: Prof. Lichtheim and Prof. F. Meyer, Drummstr. 25-29, Königsberg.

SEPTEMBER 27-30.—International Physiological Congress. Vienna. President: Prof. S. Exner. General Secretary for United Kingdom: Prof. E. B. Starling, University College, London, W.C.

OCTOBER 6-12.—Congrès International du Froid. Vienna. Correspondent for United Kingdom: Mr. R. M. Leonard, 3 Oxford Court, Cannon Street, E.C.

DIARY OF SOCIETIES.

THURSDAY, JUNE 2.

ROYAL SOCIETY, at 4.30.—The Influence of Bacterial Endotoxins on Phagocytosis (Preliminary Report): Leonard S. Dudgeon, P. N. Pantan, and H. A. F. Wilson.—The Origin of Osmotic Effects. III.: The Function of Hormones in Stimulating Enzymic Change in Relation to Narcosis and the Phenomena of Degenerative and Regenerative Change in Living Structures: Prof. H. E. Armstrong, F.R.S., and E. Frankland Armstrong.—On the Direction of Motion of an Electron ejected from an Atom by Ultra-violet Light: Dr. R. D. Kleeman.—On Scandium. Part II.: Sir William Crookes, For. Sec. R.S.—The Flow of Water in Curved Pipes: Prof. J. Eustice.—On the Occurrence of a Mesocolic Recess in the Human Brain and its Relation to the Sub-commissural Organ of Lower Vertebrates; with special reference to the Distribution of Reissner's Fibre in the Vertebrate Series and its Possible Function: Prof. A. Dendy, F.R.S., and G. E. Nicholls.

ROYAL INSTITUTION, at 3.—Malaria: Major Ronald Ross, F.R.S. INSTITUTION OF MINING ENGINEERS, at 11 a.m.—Presidential Address: Dr. J. B. Simpson.—A Storage-battery Extension to a Three-phase Colliery Power-plant: W. Maurice.—On Measurements of the Downward Increase of Temperature in Bore-holes, their Techniques and their Practical Importance for Geological Prognosis: Prof. J. Koenigsberger and Dr. Max Mühlberg.

LINNEAN SOCIETY, at 8.—A Contribution to our Knowledge of the Flora of Gazaland: Dr. A. B. Rendle, F.R.S., and others.

RÖNTGEN SOCIETY, at 8.15.—Practical Observations on Every-day X-Ray and Electrical Work: Filtration of Rays, Measurement of Rays, Rapid Stereoscopic Method: Dr. Howard Pirie.—Recent Improvements in Radiographic Technique: Dr. R. Knox.

FRIDAY, JUNE 3.

ROYAL INSTITUTION, at 3.—The World of Plants before the Appearance of Flowers: Dr. D. H. Scott, F.R.S.

ROYAL INSTITUTION, at 9.—Renaissance Monuments in the Roman Churches, and their Authors: Sir Rennell Rodd, G.C.V.O., K.C.M.G.

INSTITUTION OF MINING ENGINEERS, at 10 a.m.—Experiments illustrative of the Inflammability of Mixtures of Coal-dust and Air: Prof. P. Phillips Bedson.—Testing for Fire-damp: Prof. J. Cadman.—Some Memoranda concerning Coal-dust: H. W. G. Halbaum.

GEOLOGISTS' ASSOCIATION, at 8.—A Preliminary Account of the British Fossil Voles and Lemmings; with some Remarks on the Pleistocene Climate and Geography: M. A. C. Hinton.—Notes on some Igneous Rocks from North Devonshire: H. Dewey.

SATURDAY, JUNE 4.

ROYAL INSTITUTION, at 3.—Electric Heating and Pyrometry: Prof. J. A. Fleming, F.R.S.

MONDAY, JUNE 6.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—The Yolo-Cross River Boundary Commission, Southern Nigeria: Major G. F. A. Whitlock, R.E.—Journeys in Southern Nigeria: P. A. Talbot.

VICTORIA INSTITUTE, at 4.30.—Determinism: Archdeacon Potter. ARISTOTELIAN SOCIETY, at 8.—The Nature of Propositions: Sydney Waterlow.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—The Accuracy obtainable in Fuel Calorimetry: G. N. Huntly.—Differential Distillation: J. L. Foucar.—The Production of Formic Acid by the Atmospheric Oxidation of Turpentine: C. T. Kingzett and R. C. Woodcock.—Proposed Method for the Estimation of Butter Fat, Cocoa Nut Oil, Palm Kernel Oil and the Determination of their respective Proportions in Mixtures: S. H. Blichfeldt.—The first Synthesis of Ethyl Alcohol: Prof. R. Meldola, F.R.S.

TUESDAY, JUNE 7.

ROYAL INSTITUTION, at 3.—Hereditry in Tudor and Stuart Portraits: C. J. Holmes.

MINERALOGICAL SOCIETY, at 5.30.—On the Occurrence of Phenakite in Cornwall: A. Russell.—(1) Phacolite from near Belfast; (2) Crystalline Form of Nitrogen Sulphide: Dr. G. F. H. Smith.—On a new Arsenate

and Phosphate of Lime and Strontia from the Indian Manganese Deposits: Dr. G. F. H. Smith and Dr. G. T. Prior.—A (fifth) List of New Mineral Names: L. J. Spencer.

THURSDAY, JUNE 9.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: The Distribution of Velocity in the β -Rays from a Radio-active Substance: J. A. Gray.—The Decrease of Velocity of the β -Particles on Passing through Matter: W. Wilson.—Rate of Emission of α -Particles from Uranium and its Products: J. N. Brown.—The Effect of Small Traces of Water Vapour on the Velocities of Ions produced by Röntgen Rays: R. T. Lattev.—On the Variation with Temperature of the Viscosities of the Gases of the Argon Group: Dr. A. O. Rankine.—The Effect of Pressure upon Arc Spectra. Part II., No. 4, Gold: Dr. W. G. Duffield.

MATHEMATICAL SOCIETY, at 5.30.—A New Method in the Theory of Integration: Dr. W. H. Young.—The Composition of Finite Screw Displacements: G. T. Bennett.—Note on the Theory of Linear Differential Equations: Prof. M. J. M. Hill.—The Generation of Cubic Curves by Apolar Pencils of Lines: W. P. Milne.—On Semi-integrals and Oscillating Successions of Functions: Dr. W. H. Young.

ROYAL INSTITUTION, at 3.—Malaria: Major Ronald Ross, F.R.S.

FRIDAY, JUNE 10.

ROYAL INSTITUTION, at 9.—The Progressive Disclosure of the Entire Atmosphere of the Sun (in French): Dr. H. Deslandres.

PHYSICAL SOCIETY, at 8.—A Galvanometer for Alternate Current Circuits: Dr. W. E. Sumpner and W. C. S. Phillips.—The Positive Electrification due to Heating Aluminium Phosphate: A. E. Garrett.

ROYAL ASTRONOMICAL SOCIETY, at 5.

MALACOLOGICAL SOCIETY, at 8.—A Revision of the Species of the Family Pyramidellidae occurring in the Persian Gulf, Gulf of Oman, and the North Arabian Sea: Dr. J. Cosmo Melville.—The Anatomy of *Hemiplecta Joulii* from New Guinea: R. H. Burne.—Further Notes on the Dates of Issue of Sowerby's "Conchological Illustrations": A. Reynell.

SATURDAY, JUNE 11.

ROYAL INSTITUTION, at 3.—Electric Heating and Pyrometry: Prof. J. A. Fleming, F.R.S.

CONTENTS.

PAGE

The Mammals of Somaliland. By Sir H. H. Johnston, G.C.M.G., K.C.B.	391
Some British Fresh-water Protozoa	392
Technical Chemistry of Sugar and Starch. By C. S.	393
Petroleum Mining and Oil-fields	393
Essays on Angling. By L. W. B.	394
Zoological Studies	394
Our Book Shelf:—	
Greenwood: "Physiology of the Special Senses"	395
Hull: "Reminiscences of a Strenuous Life"	395
Tarbell: "Catalogue of Bronzes, &c., in Field Museum of Natural History"	396
Millard: "The Building and Care of the Body"	396
Bradley: "The English Lakes"; Danks: "Canterbury"; How: "Oxford"	396
Letters to the Editor:—	
The Temperature Conditions within Clouds. (Illustrated.)—Andrew H. Palmer	396
Eddy Formation—A Correction.—E. H. Harper; G. H. B.	397
The Nutritive Value of Black Bread.—Frank H. Perry-Coste; The Writer of the Article	398
Native Tantalum.—Dr. W. von John	398
The Recent Eruption of Mount Etna. (Illustrated.) By Prof. A. Riccio	399
The Ethnography of Southern India. (Illustrated.)	400
Sheffield Meeting of the British Association	401
Prof. Robert Koch, For. Mem. R.S.	402
Major Philip Cardew, R.E.	404
Notes	404
Our Astronomical Column:—	
The Solar Constant	409
Origin of Binary Stars	409
The Astronomical Society of Antwerp	409
Observations of Halley's Comet. (Illustrated.)	409
A Nutrition Laboratory. (Illustrated.)	411
Sewage Disinfection. By Edward Ardern	411
Oceanographical Investigations in the Atlantic and Mediterranean	412
A New Amperemeter	413
Geology of the London District	413
Economic Entomology. By G. H. C.	414
Alterations of the Development and Forms of Plants as a Result of Environment. By Prof. G. Klebs	414
Plants of Scottish Lochs. (Illustrated.)	415
University and Educational Intelligence	417
Societies and Academies	418
Forthcoming Congresses	419
Diary of Societies	420